

Endicott Development Project

Public Scoping Meeting

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PUBLIC SCOPING MEETING
ENDICOTT DEVELOPMENT PROJECT

POINT BARROW, ALASKA
JANUARY 21, 1983

H & M COURT REPORTING
1031 WEST 4TH AVENUE, SUITE 220
ANCHORAGE, ALASKA 99501
(907) 274-5661

1 P R O C E E D I N G S

2 JANUARY 21, 1983

3 COLONEL SALING:

4 I appreciate those of you that came this evening
5 to this second scoping meeting for the Endicott
6 Development.

7 Those of you I haven't met, I'm Colonel Neil
8 Saling, the District Engineer for the Alaska
9 District, Corps of Engineers.

10 We received an application from Sohio and Exxon
11 Petroleum Companies for a development which is now
12 known officially as the Endicott Development, and
13 those of you who have picked up the brochure know
14 that in the past it was called the Sag Delta and the
15 Duck Island, but it is the development of the
16 Endicott reserves which are in the Sagavanirktok
17 River Delta.

18 We have representatives of those oil companies
19 here tonight, and one of the things we want to do for
20 you is to give you a fairly detailed briefing on what
21 is proposed as far as that Endicott Development is
22 concerned.

23 As a basis for reaching a decision on the permit
24 application that we've received in the Alaska
25 District from those oil companies, we are preparing

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1 an Environmental Impact Statement. As I indicated,
2 this is the second of five scoping meetings, and by
3 "scoping meetings" I mean those meetings which we are
4 holding both in Anchorage and Fairbanks, but also up
5 here on the North Slope, in hopes of getting from you
6 the kind of information that you think needs to be
7 addressed in the Environmental Impact Statement.

8 We had a couple of very productive meetings this
9 afternoon with representatives of local government.
10 They gave us some insight into the North Slope and
11 the kinds of things that they believe need to be
12 addressed, and hopefully this evening we'll be able
13 to solicit some views from you of those things which
14 you think are important in that Environmental Impact
15 Statement.

16 The other two meetings up here on the North
17 Slope, just for your information; one will be at
18 Nuiqsut and the other in Kaktovik, and those will be
19 held Thursday and Friday of next week.

20 Our schedule for the preparation of the
21 Environmental Impact Statement is shown on the
22 scoping document I think most of you picked up as you
23 came in. We plan to have the draft of that
24 Environmental Impact Statement completed in October
25 of this year, and the final completed in March of

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1 1984.

2 One of the assumptions in this kind of a tight
3 schedule is that we'll maximum benefit of existing
4 information, with a minimum amount of field work, if
5 at all possible, in using base line data that has
6 been gathered over the past two or three years, and
7 in addition, that data which has been gathered
8 through the Waterflood Project at the West Dock.

9 I'd like to identify for you the people on my
10 staff that are here tonight.

11 Rich Gutleber, sitting over here, is my Project
12 Officer, to handle this Environmental Impact
13 Statement.

14 Dave Barrows, right back here, is the head of a
15 regulatory branch, and he will be putting together
16 those pieces that are necessary to process the
17 permit.

18 Those are the two points of contact, one on the
19 Environmental Impact Statement and the second on the
20 permit itself.

21 Now, to help us prepare this Environmental Impact
22 Statement we contracted with a third party, and
23 they're here this evening, and they will help us run
24 the meeting; they're from the Environmental Research
25 and Technology organization, or ERT, if you hear them

1 referred to that, and the primary representative here
2 is Mr. Doug Ross, who will also talk to you a little
3 bit later.

4 What I plan to do this evening is have the oil
5 company representative, Mr. Huxley brief you on what
6 constitutes the Endicott Development, and then have
7 Doug Ross brief you on the Environmental Impact
8 Statement, and that process, and then open it up to
9 your questions of both the scope of the project and
10 the scope of the Environmental Impact effort, and
11 then after that, we will take any statements or
12 questions.

13 Now, from a mechanical standpoint, as you note,
14 this is being recorded so we have this for
15 posterity.

16 When we start into the question and answer
17 period, I'll take this little podium here, and I'll
18 move it out, and if you would, if you have a
19 question, just come over, tell us who you are, if you
20 represent an organization, state that, also, and then
21 just stand or sit behind this table and you can give
22 us your comments.

23 So with that introduction, I would like, at this
24 time, to go ahead and turn this over to Doug Ross.
25 He will introduce the people from the oil company,

1 and take the next segment of the meeting, and then
2 I'll come back and handle the question and answer
3 period.

4 MR. ROSS:

5 Thank you, Colonel Saling.

6 I am the Assistant Project Manager for ERT on
7 this project, and as has been indicated by Colonel
8 Saling, ERT has been retained as the third party
9 contractor -- EIS contractor that will conduct the
10 environmental analysis on this project, working with
11 the Corps of Engineers. Therefore, for the next 15
12 months, we will be working very closely with the
13 Corps of Engineers in completing this whole analysis.

14 Tonight's session is going to consist of three
15 topics. One area is the description of the proposed
16 project, which will be handled by Sohio. I will talk
17 a little bit about the process that we're in now, the
18 scoping process -- the preliminary front end of the
19 whole EIS process. And then I'll go through the
20 seven or eight steps that make up the description of
21 the EIS process.

22 I think before we go any further it is
23 appropriate to introduce the Sohio people who will
24 participate in the presentation tonight. To my right
25 at the far end of the table is Del Dias, who is the

1 Senior Environmental Engineer for Sohio; he's from
2 Anchorage. And the next gentleman is Dan Huxley, who
3 is the Development Planning Supervisor for the
4 Endicott Project; he's based in San Francisco.

5 At this time Dan Huxley, from Sohio, will tell
6 you a little bit about the proposed project. I
7 think it's important for you at this stage to have a
8 clear understanding of the proposed project and also
9 the major alternative that Sohio is considering.
10 That will help you identify questions, issues of
11 concern tonight that you can come back to us with.

12 Dan, would you tell them a little bit about the
13 project.

14 MR. HUXLEY:

15 I would like to begin by giving a brief status of
16 just where the project is right now. We have
17 completed the major conceptual engineering studies
18 for the project. These were being conducted for the
19 purpose of determining the technical feasibility of
20 developing the field, and the estimated cost of that
21 development.

22 This work was conducted in a very broad scope,
23 realizing that the scope of the project would be
24 changing as progress was made, particularly in the
25 area of the reservoir and our understanding of just

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1 what the reservoir is.

2 The other thing that's happened, as Colonel
3 Saling mentioned, the initial permit on the project,
4 that being a permit with the Corps of Engineers, has
5 been filed, and that filing has kicked the EIS
6 process.

7 Our purpose for this early filing was realizing
8 that the EIS process is a lengthy one. We wanted to
9 get things going early because of the fact that the
10 time we receive the permit is critical to our overall
11 project schedule.

12 Also, it has been our intent, and continues to be
13 our intent, to resolve issues of agency and public
14 concern, as early on in the project as we possibly
15 can.

16 We've also prepared and submitted to the Corps
17 and the various permitting agencies, an engineering
18 overview which describes in greater detail that I
19 will be this evening just what the project looked
20 like that we went through conceptual design with and
21 the other document that was submitted was an
22 environmental overview which describes the
23 environmental setting.

24 At the present time we are evaluating the major
25 development alternatives for the project, with the

1 intent of arriving at the development scheme. The
2 major effort right now is focused on determining the
3 optimum number and location of gravel islands. And
4 to determine this, is very dependent on results of
5 reservoir work that we're performing right now.

6 It's important to note, I think, that the
7 companies have not made, at this point, final
8 commitment to develop, and that commitment cannot be
9 made until we really have additional reservoir
10 information, engineering and cost data on the
11 project. However, we are committed to the project;
12 the work we have performed thusfar, and the work we
13 are planning during the next 18 months, we think
14 indicates our serious intent to proceed as far
15 forward in the project as we possibly can.

16 What I would like to do now is move into the
17 project description.

18 Note that the project that I will be describing
19 here is consistent with the description contained in
20 the engineering overview, which as I said, has now
21 been filed with the Corps and the other agencies, and
22 the Borough has a copy, and is available for public
23 review to gain additional detail on what the project
24 is.

25 The project, also, that I will be describing

1 includes both the initial facilities and possible
2 future increments that may be needed, and I'll
3 describe those a little bit later.

4 In general terms, the project is located 15 miles
5 east of Prudhoe Bay, and between two and four miles
6 offshore from the Sagavanirktok River Delta.

7 The water depths in the project area vary from
8 four feet to 18 feet.

9 In very general terms, the project includes a
10 total four gravel islands, the central drilling and
11 production island, two satellite drilling islands, a
12 waterflood island, a gravel causeway connecting the
13 main island to shore, pipelines between the islands
14 -- each of the satellite islands and the main island
15 and two main oil and gas product pipelines from the
16 main island to sales points at Prudhoe Bay.

17 In addition we'll have a main construction camp
18 and a base operations camp located in the Delta
19 Uplands.

20 The timing of the project, we estimate that
21 production will start up in mid 1988. At that time
22 we have to have -- start up with between 75 and
23 150,000 barrels of oil per day.

24 Gas sales from the field's expected to peak at
25 approximately 250 million cubic feet of gas per

1 day. The timing and rate of gas sales, at this
2 point, is dependent upon the timing of the Alaska
3 Natural Gas Transportation System, and also reservoir
4 management needs for possible re-injection of gas.

5 In moving on into a little bit more detail, the
6 two satellite drilling islands are each located
7 approximately 2 1/2 miles from the main island. They
8 contain from one to two drilling rigs and drilling
9 support equipment and up to 80 wells each.

10 The production from the wells on each of the
11 satellite islands will flow to the main production
12 island through a produce fluid pipeline between the
13 islands. The main production island will also
14 include drilling and well operation facilities for up
15 to 80 wells. In addition to that, it will contain
16 all the main processing facilities for the field, and
17 this will include the main separation and fluid
18 handling facilities; the water treatment and
19 disposal; the gas treatment and handling; the oil
20 treatment and handling; and will also include various
21 support facilities, power generation equipment, and
22 so forth.

23 The fourth and smallest island is the Waterflood
24 Island. This is located approximately two miles
25 further offshore from the main island, in

1 approximately 18 feet of water depth, for the purpose
2 of providing a year round supply of sea water for the
3 project.

4 UNIDENTIFIED SPEAKER:

5 That small island that is reserved for water, is
6 that going to be used for any drilling?

7 MR. HUXLEY:

8 No. All drilling will be handled from one of the
9 three drilling and production islands. The
10 Waterflood Island will contain only the water intake
11 structure, to bring sea water into the island and
12 facilities to transport that sea water over to the
13 main production island. At the main production
14 island the water will be treated and pressured for
15 injection into select water injection wells for water
16 flooding, and those wells will be located on the
17 three drilling and production islands.

18 The pipelines required for the project, as I
19 mentioned earlier, include both the inter-island
20 pipelines connecting the islands as well as the sales
21 lines to sales points at Prudhoe. The inter-island
22 pipelines include the produced fluid pipelines from
23 the satellite drilling islands; the source waterline
24 from the Waterflood Island, as well as some
25 additional pipelines for transporting water back to

1 the satellite islands for waterflood injection, and
2 transferring gas back to the Waterflood Islands for
3 artigen litnates (phonetic).

4 The inter-island pipelines will be buried in
5 subsea trenches with appropriate cover over the lines
6 to protect the lines from ice gouging, ice scour and
7 strudel scour.

8 The actual depth and method of covering the
9 pipelines will depend on the location of the pipeline
10 and the additional geotechnical work that we're now
11 performing.

12 The pipelines, both the inter-island and the
13 sales pipelines will be designed with the expressed
14 purpose of preventing leaks and those prevention
15 techniques will include both proper selection of
16 material for the pipe; proper installation of the
17 pipelines and operation of the lines, including
18 corrosion control methods.

19 Beyond that, we will have installed leak
20 protection equipment to detect leaks, if they do
21 occur, and this will include continuous monitoring
22 devices as well as periodic leak detection devices,
23 such as pipeline pigs that go through the inners of
24 the pipeline and detect any problems in the pipeline.

25 The pipelines to sales points include two

1 pipelines; a 16 inch oil line and a 16 inch gas
2 line. The oil line will end up at TAPS Pump Station
3 1; the gas line will end up at the future Alaska Gas
4 Conditioning Facility.

5 Two alternate routes have been examined through
6 our conceptual design phase of the work, and I would
7 like to go briefly through those two routes at this
8 time.

9 The first one will be referred to as the Sag
10 Delta Route. In this case the pipeline comes to
11 shore, buried in a gravel causeway connected between
12 the main island and shore. At this point it
13 continues buried along for another mile and a half or
14 so in a gravel approach to the causeway. At that
15 point it comes above ground and continues on elevated
16 pipeline supports, over through the Delta area to
17 Drill Site 9. At this point it continues along
18 existing pipeline corridors, both to TAPS and to the
19 AGCF.

20 The alternate route that was examined we refer to
21 as the West Dock Pipeline Route. In this case the
22 two pipelines start at Production Island B and
23 continue buried in the subsea trench over to the PBUS
24 Dock.

25 At this point it continues in a gravel shoulder

1 to be added to the dock and then above ground on
2 elevated pipeline supports along existing right-of-
3 ways and pipeline corridors to the AGCF and TAPS Pump
4 Station 1.

5 Based on the results of the conceptual
6 engineering work, we are now favoring and indicating
7 a preference for the Sag Delta Route. The reason for
8 that preference are several. Number one, the
9 causeway itself provides year round transportation,
10 road access to the main island. It also provides
11 operations convenience throughout the period of
12 operation. It will significantly reduce our
13 construction cost in building the other outlying
14 islands, and will also provide a method of carrying
15 the sales pipelines to shore and avoiding any
16 permafrost in that area.

17 The last items I would like to go over are the
18 two camps that we propose to construct. One is the
19 base operations camp, the other a main construction
20 camp. In the base case design that we've indicated,
21 these are both included on a single gravel pad,
22 approximately 50 acres area, located about six miles
23 from the main island in the Delta Uplands.

24 The base operations camp will be a permanent
25 facility designed to accomodate approximately 250

1 people. It will include the housing for those peop'
2 as well as support facilities.

3 The main construction camp will be designed to
4 accomodate 750 construction personnel, including
5 housing facilities, support equipment for a
6 construction camp, as well as material storage
7 areas. The construction camp is expected to operate
8 through the period of construction.

9 The two camps, as I say, in our base case, are
10 located on the same gravel pad. Assuming that that
11 would continue, the facilities would share common
12 facilities such as waste water handling, and sewage
13 disposal as much as possible.

14 The gravel requirements for the project, we now
15 estimate that approximately 8 million yards of gravel
16 will be required. This will include about 4 million
17 yards for the islands, an additional 2.5 million
18 yards for the causeway and the causeway approach; an
19 additional 1.5 million yards for the onshore road
20 that comes along the same corridor as the pipeline,
21 and the pipeline work pad.

22 The actual method of construction will depend
23 upon the gravel source selected. At this time both
24 onshore and offshore sites for gravel are being
25 considered.

1 UNIDENTIFIED SPEAKER:

2 Whereabouts are you going to get your offshore
3 gravel?

4 MR. HUXLEY:

5 We're doing a survey right now of possible
6 offshore sites. Some of the earlier work that we
7 had done -- in fact, we talked about this a little
8 bit at a meeting back in May at which I know there
9 were a couple of Borough representatives there; had
10 indicated at that time a preference for the on-shore,
11 simply because of the limited data that we had for
12 offshore sites.

13 At this time we're really expressing no
14 preference. We're going to be examining both the
15 onshore and offshore sites. So I can't identify any
16 specific offshore sites. In the Engineering Overview
17 we identified half a dozen or more onshore sites,
18 which basically were currently permitted sites.

19 This is the project schedule that I'd like to go
20 through very briefly. The detail design work on the
21 project is expected to get underway the second
22 quarter of this year.

23 In mid 1984 we're looking at a major project
24 decision on commitment to construction to field
25 development. That would be after receipt of all

1 permits for the project. At that time we would be
2 the position to order long lead equipment and begin
3 preparation for the off-site work up in the Delta
4 area, road construction and pipeline add
5 construction.

6 The actual gravel work will begin with the off-
7 site work in the Delta in late '84. The construction
8 of the islands and causeway will begin in about mid
9 1985. Also, in mid 1985 the module construction work
10 will begin in the Lower 48.

11 The pipeline construction beginning late '85 with
12 drilling commencing around the first quarter of
13 1986. We expect to have to predrill a number of
14 wells prior to start-up to have sufficient well
15 capacity available for start-up in 1988.

16 North Slope construction actually beginning in
17 '86 with the major installation of facilities
18 occurring after our major Sea-Lift, which is our 1987
19 Sea-Lift.

20 We're then going to, right now, projecting mid
21 1988 production start-up.

22 Now, the last line I've indicated here is future
23 increments, and what we're talking about, future
24 increments at this point, there's a possibility that
25 the waterflood island and associate facilities with

1 the waterflood may not be required at start-up, but
2 may be required, perhaps, two to three years
3 following; this has not been determined as yet.

4 Also, some of the other facilities such as
5 artificial lift, low pressure separation and
6 expansion to produce water capability may occur at a
7 later date.

8 In terms of project footprint, we really are
9 seeing no more than what we showed you in the first
10 slide. We're not looking at a bunch of additional
11 islands. The only thing that's uncertain right now
12 would be the timing of the actual waterflood island,
13 but it appears now in recent reservoir work that that
14 may be required at time of start-up.

15 Just to briefly recap, we're talking about a
16 total of four gravel islands; a main production
17 island; two satellite drilling islands; a total of
18 240 wells, 80 on each of those three islands; a
19 waterflood island; a gravel causeway from the main
20 island to shore; pipelines connecting the islands;
21 sales pipelines from the main island through the
22 delta to sales points at Prudhoe Bay; a main
23 construction camp and a base operations camp located
24 in the Delta Uplands.

25 That concludes the presentation.

1 UNIDENTIFIED SPEAKER:
2 What is the estimated recoverable oil there?
3 MR. HUXLEY:
4 Total oil in place is estimated to be about a
5 billion barrels.
6 UNIDENTIFIED SPEAKER:
7 Your causeway a two mile causeway, right?
8 MR. HUXLEY:
9 Right now the causeway that's shown here is about
10 two miles.
11 UNIDENTIFIED SPEAKER:
12 Is it a continuous.....
13 MR. HUXLEY:
14 It's a continuous gravel causeway.
15 UNIDENTIFIED SPEAKER:
16 Are you anticipating doing anything with the
17 approximately 250 million cubic feet of natural gas
18 that's in that area?
19 MR. HUXLEY:
20 We're anticipating selling it. What I noted is
21 that that sale is dependent, number one, on the
22 Alaska Natural Gas Transportation System; the
23 completion of which is uncertain right now. And the
24 other thing that's uncertain is the need for
25 reservoir conservation to reinject the gas. In that

1 case the sales may not be available at day one, but
2 may be delayed, and the timing of that delay really
3 is dependent on reservoir studies that we're still
4 doing and continuing to do.

5 MR. ROSS:

6 The next topic I wanted to discuss was a little
7 more detail on what this scoping frontend process is
8 before we really start preparing the EIS.

9 There are federal laws that require the
10 government to hold meetings prior to consideration of
11 most permanent applications for a project such as the
12 Endicott Development Project. And these public
13 meetings allow the public to step forward and ask
14 questions about the project, and to raise concerns
15 about the project, and these questions and concerns
16 can either be written, by writing them down on one of
17 these cards, or paper of your own choice, or they can
18 be verbal, such as the meeting we are holding
19 tonight.

20 After the public, local, state and federal
21 questions and concerns are sent in to the Corps of
22 Engineers, both the Corps of Engineers and ERT will
23 analyze these questions and then we will prepare a
24 report which will highlight the most significant and
25 important questions and concerns and issues.

1 The identification and ranking of these important
2 concerns and issues will then direct us in our whole
3 effort to prepare the EIS.

4 I think throughout this meeting it's important
5 that you recognize that we're here to listen to you,
6 and we encourage you to ask questions, and if you'd
7 rather not stand up and ask the questions, then get a
8 card here at the end of the table and write those
9 questions down. You can, also, within the next
10 thirty days, mail the questions in to the Corps of
11 Engineers; they don't have to be done tonight.

12 If you've given us your name and address on the
13 register up front, we will mail you a copy of the
14 scoping report which highlights the results of the
15 meetings prior to the incorporation of EIS. I think
16 some time, probably the end of February and March
17 we'll have the scoping documents.

18 I'll spend a few minutes describing to you what
19 we're going to do on this EIS; how we're going to
20 analyze the proposed project and evaluate the
21 available data and prepare the draft and final EIS.
22 I'll show you a few overhead slides.

23 (Whereupon at this point in the hearing slides
24 were shown.)

25 What I just got through talking about, that's

1 what we're in right now. It's really the pre-EIS
2 task to get the public input.

3 In the next month and a half we will be working
4 with the Corps of Engineers to finalize the work
5 plans. Those work plans will really govern what
6 we're going to look at and how we're going to handle
7 the significant issues and concerns. And we will
8 prepare a work plan for all the environmental
9 disciplines; the biology, the soils, the water
10 resources; each one of those will have a study plan
11 which will direct us for the rest of the study.

12 Those study plans will also be worked out in
13 conjunction with the key state, federal and local
14 agency people; they will participate in the review of
15 these work plans.

16 Task three, ERT will start to take a look at all
17 the base line data -- the field data that has been
18 collected in the Sag Delta region. This will also
19 include studies that were done as recently as the
20 summer of 1982. They essentially cover all of the
21 biological and physical science disciplines out
22 there, the water resources, the oceanography, the
23 aquatic biology, the terrestrial biology. Details
24 for the winter and summer studies have been performed
25 both on-shore and off-shore in the affected area.

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1 We will spend a considerable amount of time
2 having our discipline experts take a look at this
3 data and analyze it and really condense it down so
4 that we could present the important features of those
5 baseline the studies and put them into the impact
6 statement and use them for the project description to
7 analyze the impact on the project.

8 The task four is the actual impact analysis where
9 we, in effect, superimpose what Sohio is proposing,
10 and the principal alternatives that they're looking
11 at. We superimpose that on the existing environment,
12 and from that we identify what the short term and the
13 long term impacts are going to be. And at that time
14 we will also look at the proposed mitigation
15 measures, restoration methods that Sohio is
16 proposing. We will also be recommending mitigation
17 measures of our own to protect the environment.

18 I think this gets back to the point why this is
19 so important for your issues and concerns to come in
20 at this time, because this will have a lot of clout
21 on this task four impact analysis, where the
22 mitigation measures are developed.

23 The various alternatives that Sohio is taking a
24 look at will be evaluated with regard to the impact
25 on the environment from each alternative, and that

1 will be documented. That's one through four, that
2 will form the basis for preparing the draft EIS.

3 The highlights of all four tasks will be
4 documented in this draft, and I think all the
5 interested parties will receive a copy of this draft
6 EIS.

7 There will be a review time for the public to
8 take a look at the draft EIS and give either written
9 or verbal comments back in to the Corps of Engineers.
10 And at that time we will work with Sohio and the
11 Corps of Engineers to address the questions on EIS
12 and the points that the public and the agencies
13 raised on the draft EIS. We will try and answer
14 those and correct the deficiencies that have been
15 found on the draft EIS and publish a final EIS.

16 We're talking about approximately 15 month
17 process to go through these seven tasks. So some
18 time in the spring of 1984 we should have a final EIS
19 out on the street. This was an optimistic schedule,
20 but if everything goes right, I think it can be
21 accomplished in a 15 month period.

22 I would like to go over with you a preliminary
23 list of some of the concerns and issues that the
24 Corps of Engineers and some of the other agencies
25 have identified, and you might look at these as

1 potential problems that might be caused by the
2 project, and while they're only guesses at this time,
3 certainly this is a starting point that I'd like to
4 go over with you.

5 The first potential issue and concern is, will a
6 water quality and a fish migration effects related to
7 the proposed causeway, and I think we already got a
8 question tonight on that causeway. This is certainly
9 a principal issue that we are going to spend a lot of
10 time in the next 15 months looking at.

11 The next one is the effects on snow goose nesting
12 and rearing habitat within the Sag Delta area.
13 That's one of the principal snow goose habitats in
14 the U.S. So that is certainly going to be another
15 important on-shore issue and concern that we look at.

16 The third one is the effects of discharging
17 drilling mud and cuttings off-shore. That will occur
18 from the three drilling islands.

19 A fourth one, is the effects on the Stefansson
20 Sound Kelp Community, or commonly called the Boulder
21 Patch, which exists in the shallow waters off-shore
22 of the Sag Delta. It's a very important ecological
23 area, so we will be taking a look at the project on
24 how it essentially could impact that Boulder Patch.

25 The next one is disturbance of the bowhead whale

1 and other marine mammals by the human activity
2 associated with the Endicott Development Project.

3 The next one is the effects on the caribou use
4 and their migration and movement patterns across the
5 Sag Delta. There have been ongoing studies probably
6 for the last ten years that we will be looking at
7 with regard to this issue and concern.

8 The next one, another very important one, risk
9 analysis related to the ice over-ride threat to the
10 artificial islands -- four artificial islands.

11 And the last one is also another risk analysis.
12 The risk analysis related to the wellhead blowouts
13 and potential pipeline leaks.

14 I think some of these are obvious things that we
15 ought to be looking at. I think the purpose of
16 putting a list up like this is maybe to encourage you
17 to come forward with more of your concerns. If there
18 are other ones that are outside of these lists, we
19 would like to hear about it tonight. And as I said
20 before, there is a 30 day response period where your
21 written or verbal concerns can be sent in to the
22 Corps of Engineers.

23 I would like to turn the meeting back now to
24 Colonel Saling.

25 COLONEL SALING:

1 I have just one additional task that has to be
2 added to the end of the tasks that he's shown you
3 there, as far as the Environmental Impact Statement
4 is concerned. And that is, once this document is
5 prepared, at that point in time, then we must make a
6 decision as to whether or not to issue the permit or
7 to deny the permit, or to issue the permit with
8 stipulations in it that make it more environmentally
9 acceptable. That's what that whole list of tasks is
10 leading up to.

11 What I would like to do now -- I was not going to
12 take a break, but I think it's time we grabbed a
13 quick cup of coffee and come back in. I'll move this
14 table out that way a little bit, and you all with,
15 either questions or comments or anything you would
16 like to say, you can come up to the table and address
17 the. So why don't we grab a cup of coffee and
18 reconvene in about ten minutes.

19 (Whereupon a brief off the record period was then
20 taken.)

21 COLONEL SALING:

22 Ladies and gentlemen, the podium up here may look
23 somewhat intimidating to you, but we have to do this
24 so we could keep track of the questions and comments
25 on the tape that we've got running up here.

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1 I've got a couple people who have indicated a
2 desire to give us some comments this evening. Those
3 that have made that indication, I'm going to ask them
4 to come up first and we'll talk to them and then I
5 want to open it up, and anybody else who has
6 questions, comments, anything at all, I'll open it to
7 that, and then at the close I'll remind you again
8 that there's a 30 day period in which we'll keep the
9 record open and in which you could send us any kind
10 of written comments.

11 JoAnn Loncar.

12 MS. LONCAR:

13 My name is JoAnn Loncar. I work with the North
14 Slope Borough, Environmental Protection Office, and I
15 had a question for the representatives from Sohio
16 regarding the subsea pipeline.

17 You said that you've done studies to determine
18 appropriate covering for the pipelines to protect it
19 from ice scour. I would like some information on
20 those studies, and how it was determined that it
21 would protect the pipeline, being that there is no
22 pipeline in the offshore region to date.

23 MR. HUXLEY:

24 They serve two aspects of that; one is the
25 pipeline trench depth, which we feel is the most

1 important part of protection; keeping the pipeline
2 deep. The work that's been thusfar on that has been
3 -- the past two summers we've done what we call
4 strudel scour survey to examine strudels, and to
5 determine just how deep they are, the occurrence, how
6 wide they are, and the statistically how often they
7 occur.

8 In addition to that the work has been done to try
9 to determine what is the effect of the ice in the
10 area, in terms of how deep are the gouges, and
11 really, what is the determining effect in making --
12 select a particular type of trench and depth of
13 trench.

14 The conceptual design that we've gone through
15 actually specifies various trench depths depending on
16 the area wherein the depth of the water in that
17 particular area, the deeper ones, for example, are
18 the ones that were going in the West Dock pipeline
19 route, because they were in the deeper water and
20 would experience, through earlier study work, deeper
21 scours in that area.

22 The cover is not just a protection means from the
23 scours and the ice pounding and gouging, but also a
24 determination of what the thermal mechanism is there
25 in heat transfer and the insulation of the pipes, and

1 really more of a, sort of a heat balance than really
2 a protection from the scouring and ice gouging
3 mechanisms.

4 It is also another important part of the subsea
5 pipeline, is to prevent permafrost thawing, and
6 that's a balance of just how much heat these
7 pipelines are giving off against making sure they
8 don't give off too much and start doing some
9 thawing. So to prevent that, in some cases, we don't
10 have much cover to allow them to dissipate their heat.

11 MS. LONCAR:

12 Because you'll also be having gas lines and they
13 tend to freeze in the outside area instead of thawing
14 it; you'll have them running side by side. Would
15 Sohio consider putting in a test line before actually
16 installing producing lines?

17 MR. HUXLEY:

18 From a thermal analysis standpoint or from damage
19 from scour and such?

20 MS. LONCAR:

21 Damage. And thermal. I imagine you could obtain
22 quite a bit of information.....

23 MR. HUXLEY:

24 It's a little difficult -- I couldn't make a
25 commitment right now on the specific study. The

1 difficulty there is that the scours -- you know, you
2 would get scours in a very widely spaced area very
3 infrequently, and so you could put a pipeline in a
4 study area and come back a year later and say the
5 pipeline is fine, but that doesn't necessarily mean
6 that all pipelines would be fine, because maybe 50
7 feet away you'd have a deep strudel scour. So the
8 approach we'd take is to be looking at the whole
9 area, particularly the corridors we examined thusfar,
10 and looking specifically at what scour depths are,
11 and from that, determining what is the proper depth
12 of the pipeline.

13 MS. LONCAR:

14 Thank you.

15 COLONEL SALING:

16 I have noted on here that the pipeline
17 reliability is one of the things that needs to be
18 addressed, so thank you very much for your comments.

19 DR. HARCHAR^EIK:

20 I'm Dr. Bob Harchar^Eik, I'm a Technical Advisor
21 for the Inupiat Corporation, which is the village
22 corporation of the village of Barrow, organized under
23 ANCSA.

24 I sent your office an extended statement,
25 elaborating on these points -- some of these

1 questions; possibly a few others will be included.

2 There are four concerns that has come up. The
3 people I work with and some of those that are
4 curious. One of the questions -- and I'm not trying
5 to be facetious on this is, why is the name "Endicott
6 Project" given to the -- assigned to development
7 activities.

8 Some people do consider it as creatin' a new
9 image -- creat an image, like, say, we're startin'
10 off from scratch, and let's do it right and get it
11 all together.

12 Others pointed out the possibility it's to
13 confuse the fact of where it is, and -- you know, and
14 others concerned. Because when you see your
15 announcements, and you talk about the Endicott
16 Project and in very small print you mention the two
17 islands concerned. And it's an valid concern of the
18 people. Because one of the problems that appear on
19 Slope is the fact that the communication is pretty
20 darn poor, from the outside -- the rest of the state
21 even. Sometimes mail it gets here four days after
22 the testimony was supposed to be down in somebody's
23 office. And with one radio station the announcements
24 don't always come out as they're supposed to.
25 There's difficulty with that communication.

1 MR. HUXLEY:

2 The Endicott is the technical name for the
3 reservoir, or the name that has been given to the
4 reservoir by a geologist. I don't know the history
5 as to when the reservoir was named, but that's what
6 it was named.

7 The two other titles, Duck Island/Sag Delta --
8 sort of history of the project is that Sohio and its
9 partners, the five Native corporations that it was in
10 partnership with, with pursuing its exploration of
11 the area. That exploration effort was known as Sag
12 Delta, and that's the way we refer to it.

13 On the otherhand, there was another group called
14 Duck Island Unit. That Unit was operated by Exxon,
15 and they were proceeding independently on their own
16 work.

17 We actually started exploration drilling, our
18 discovered wells back in 1978, so this is going back
19 a few years, and we've been calling it Sag Delta ever
20 since, from our standpoint.

21 Not until September of 1981 did the two groups
22 get together and agree to proceed cooperatively from
23 the standpoint of joint studies, which we thought was
24 important, and conserving around resources and also
25 realizing that it looks like this project -- the work

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1 that Duck Island Unit had done, the work that Sag
2 Delta had done, striking the same reservoir, and that
3 eventually we would like to have unitized to develop
4 the field collectively.

5 It was not until the fall of 1981 that all those
6 partners collectively came together. From that
7 point, for lack of a better name, it was called
8 Sag Delta/Duck Island, or the Duck Island/Sag Delta
9 -- the actual legal agreements that we put together
10 between us, had been referred to as the Duck Island/
11 Sag Delta. We felt that was a very cumbersome name,
12 and that was really the only reason it was dropped.

13 DR. HARCHARIK:

14 I would just like to comment that I would wager
15 on it that if you had announced at a scoping meeting
16 as being Duck Island and Sag Delta you would probably
17 have more audience participation from the local
18 community. You know, it's just a breakdown in
19 communications. It was only a couple days after -- I
20 assume the announcement, as it passed on my desk, it
21 didn't get immediate attention, and it's a valid
22 reason.

23 COLONEL SALING:

24 That is a good point.

25 DR. HARCHARIK:

1 The second concern I had is in reference to
2 gravel extraction. Other than the geological
3 consideration, you said you're checking out areas,
4 and I'm assuming that most of that is geological
5 considerations, as to what kind of gravel it is, how
6 is it extractable.

7 What other considerations have been taken -- what
8 else have you considered in selecting those areas?
9 For example, you touched on possible migration as to
10 caribou, other wildlife living in that area. That
11 might not be effective at a particular time of year,
12 when you did your observation, but it might be at
13 some other time. And I don't know if there's any
14 resource survey taking that into consideration before
15 you start the gravel extraction there.

16 Because you're talking about one heck of a lot of
17 gravel. You got 4 million cubic yards approximately
18 for the main island plus the three....

19 MR. HUXLEY:

20 That's the total for the 4 islands.

21 DR. HARCHAR^EIK:

22 Right. But then you also have another million
23 cubic yards that you have to extract because of the
24 causeway and the road. You know, and that's going to
25 be quite a drop in the -- you know, in the

1 environment out there, just a big hole. And we're
2 very concerned about what effects that would have on
3 our subsistence lifestyle, and the migration patterns
4 as they exist.

5 The development that has happened recently on the
6 Slope has affected migration patterns. It has with
7 the whale and it has with the caribou, because the
8 caribou happen to be -- they just follow different
9 patterns. That's just another consideration.

10 The third one, also relating to gravel is, when
11 you're building these gravel islands out there, what
12 consideration is given to the current patterns that
13 are constantly eroding the bottom of that gravel
14 island, as to -- you know, what it does to the
15 wildlife habitat.

16 The studies that have been done on gravel island
17 participation if you want to call it that, plus the
18 studies that have been done on the muds, most of them
19 have not analyzed the specific different -- the
20 different types of elements in those cuttings. And
21 the dicipation of various speeds.

22 We're concerned with most of the studies that
23 have been done in moderate waters, and a different
24 temperature. Some of those precipitate a lot faster,
25 depending on the temperature.

1 We're very concerned that perhaps that's going
2 end up back in the delta; how much is going to be
3 transferred to other places through the current. For
4 example, there's a study done by University of
5 Alaska, I think it was by the Geophysical Institute,
6 checking the -- what they were doing was putting
7 fluids in the water and watch what occurs.

8 Depending on what's in those notes, what's in
9 those cuttings; that could be very detrimental to the
10 local habitat; that's what we're concerned with.

11 And the last one is, have you considered
12 alternatives using gravel islands? The technology is
13 available to have a stretcher out there -- many of us
14 feel there is involved in using a gravel a island.
15 One example is the Conoco/Mobile -- that will be in
16 production shortly by way of Canada. They drilled
17 from 120 to 180 feet. Then if it doesn't have to use
18 the gravel island -- that would eliminate another
19 problem.

20 It is going to be more expensive, but considering
21 the estimates and value of this reservoir here, it's
22 pretty darn high. We were suggesting that before
23 this permit is granted, that consideration of other
24 alternatives, gravel islands be very strongly
25 considered.

1 That's all I have. Thank you.

2 COLONEL SALING:

3 Thank you.

4 I think you all know that during football games
5 many times there's a break while they don't really
6 need to call a time out, but they have to have
7 commercial time, and our tape is running out, so I'm
8 going to call time out.

9 (Whereupon a brief off the record period was then
10 taken to change the tape.)

11 COLONEL SALING:

12 The other gentleman who had indicated a desire to
13 make a comment was Percy Nucenya, who was sitting
14 over here. Do you know whether Percy plans to be
15 back?

16 (No audible response.)

17 Those are the three individuals who had indicated
18 on their attendance register that they wanted to
19 provide us with formal comments. At this time I
20 would solicit any comments that anyone else has that
21 would like to ask a question or make an input to us
22 at this time. Is there anyone else that would like
23 to ask a question or make a comment?

24 MR. MACANAHY:

25 You have my name and address on file, it's

1 Macanahy, Mike. And I had a question for Mr. Ross
2 and for you, Colonel, and also for Mr. Huxley.

3 Rather than getting into a long colloquy, maybe
4 I'll just ask the questions and sit down and you can
5 answer them.

6 And, Mr. Ross, it's just a housekeeping
7 question. Who is ERT? I understand that you're
8 being under contract to the Corps, we certainly know
9 how to get hold of the Corps; where are you at, and
10 if we wanted to contact you, how would we do it?

11 MR. ROSS:

12 ERT is Environmental Research and Technology, and
13 is almost 100% an environmental consulting firm, and
14 the primary office that is working on this project
15 Fort Collins, Colorado. We have a smaller office in
16 Anchorage; it serves as a project office.

17 We have two subcontractors that are working with
18 us; one Northern Technical Services out of Anchorage,
19 and LGL out of Anchorage and Fairbanks in addition
20 there are some Canadian cities that some of the staff
21 are coming from.

22 MR. MACANAHY:

23 So if we wanted to get hold of ERT we could get
24 hold of Colonel Saling and they could put us in touch
25 with you people?

1 MR. ROSS:

2 Sure enough.

3 COLONEL SALING:

4 Rich Gutleber over here is my prime contact. He
5 is the chap you could get hold of and he could put
6 you in contact with anybody that you need to talk to.

7 MR. MACANAHY:

8 Thank you. Colonel Saling, you indicated that
9 this EIS may rely on some previous studies that have
10 been done in the last several years. I thought that
11 you were the one that said that; maybe someone else
12 did.

13 COLONEL SALING:

14 Yes, I did.

15 MR. MACANAHY:

16 Could you give us a brief idea, what those
17 studies are? Your concerns were set forth as to the
18 scope of the project, and maybe you could give us
19 some idea what the previous studies were and what
20 their impact was. That's in the brochure; I haven't
21 read the whole thing.

22 COLONEL SALING:

23 There's a section in there called Engineering
24 Environmental Studies, and it lists four sample
25 studies; there are others that have been done, but

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1 those the oil companies had done, as well as
2 companies such as Envirosphere (phonetic) which is
3 working right now tracking down the impacts for the
4 waterflood.

5 So, they're here, and we can provide you with any
6 other ones you would like to follow up on, we'd be
7 glad to do it. Rich, as I say, is my point of
8 contact.

9 MR. MACANAHY:

10 Thank you.

11 Mr. Huxley, two questions, and they are sort of
12 related. The pipelines -- both the sales pipeline
13 and the inter-island pipelines, on your scale -- your
14 time table. Would these pipelines be -- specifica
15 the inter-island pipelines, would the be laid in the
16 wintertime?

17 And the second question is, is the alternate
18 route -- the sea route over to the West Dock -- I
19 take it that that was going to be a trench pipeline.

20 MR. HUXLEY:

21 Right.

22 MR. MACANAHY:

23 Would that.....

24 MR. HUXLEY:

25 They are both summer seasons.

1 MR. MACANAHY:

2 Summer pipelines.

3 MR. HUXLEY:

4 The placement technique would be to dredge it
5 during the summer and also to lay it during the
6 summer. The method that we considered most probable
7 for the inter-island pipeline is what we call the
8 "bottom hole", in which the pipelines are strung out
9 on the main production island and basically dragged
10 through the water to the satellite islands. The
11 method for the West Dock would be a shallow draft
12 barge; it would also be summer construction.

13 MR. MACANAHY:

14 If the alternate route were used, what would that
15 do to your time table? Could you still keep that
16 time tables?

17 MR. HUXLEY:

18 The timing is about the same; it really -- I
19 think it changes the sort of equipment that you have
20 up there, so we wouldn't plan on having certain
21 equipment, one versus the other.

22 MR. MACANAHY:

23 Where would that leave your gravel estimates if
24 the alternate route was chosen?

25 MR. HUXLEY:

1 Well, even if we do the alternate route, there's
2 a chance we would still prefer to have the road
3 through the Delta and, again, possibly a causeway and
4 still go the alternate route.

5 MR. MACANAHY:

6 And the final question, the flood -- flood
7 island, am I using that right?

8 MR. HUXLEY:

9 Right. Waterflood island.

10 MR. MACANAHY:

11 That may not have to be built for three years for
12 water injection back into the wells?

13 MR. HUXLEY:

14 Right. The way the initial study work was done
15 the assumption was made that that would not go in on
16 the initial construction of facilities and islands.
17 The reservoir perception that we have now, and this
18 is in the -- we're still discussing among the
19 companies, and their own views of the reservoir,
20 would seem to indicate that timing might be
21 accelerated, and it might have to go in at the start.

22 MR. MACANAHY:

23 Thank you. I have nothing further.

24 COLONEL SALING:

25 Thank you. Would anyone else like to make a

1 comment or ask a clarification question.

2 MR. MATUMEAK:

3 My name is Warren Matumeak. On the map here
4 showing the Satellite Island A and B, was a causeway
5 studied instead of.....

6 MR. HUXLEY:

7 Between the satellite islands?

8 MR. MATUMEAK:

9 Yes.

10 MR. HUXLEY:

11 That was a consideration. At this point we don't
12 feel it's a serious consideration because of the fact
13 that we're in deeper water at that point, and the
14 construction of a causeway in that depth of water,
15 which is like eight to nine feet, it would be very
16 expensive between the islands, so at this time we do
17 not feel that's a really feasible consideration.

18 MR. MATUMEAK:

19 That was my concern is that anything covered
20 under the surface is risky, you know. If you have a
21 leak down there you won't know it in the wintertime
22 until maybe after much of the oil has spread,
23 whereas, if it was visible, and if there's a leak,
24 you could detect it fairly quickly.

25 Under the question on page 11, that item number

1 four, under ice survey wintering fish, the survey v
2 done in the winter of 1981 and 1982. What kind of
3 survey was it? Was it gill netting -- to see how
4 much fish there were in that area?

5 MR. HUXLEY:

6 Which survey?

7 MR. DIAS:

8 There was some gill netting; there was some
9 divers that went down. It was an area just north of
10 the existing Sag pipeline crossing down for several
11 hundred yards, and they were looking for it in the
12 summer time and plotting out -- those areas were
13 conceivably -- there would be water unfrozen, and
14 then in the wintertime they would cut holes in thos
15 areas and start looking for fish. We could send you
16 a copy of that study.

17 MR. MATUMEAK:

18 Yes, I would just like to see it. Was the only
19 study around the islands.

20 MR. DIAS:

21 No, not wintertime.

22 MR. MATUMEAK:

23 Are they going to do some more under ice survey?

24 MR. DIAS:

25 At this time no additional studies are

1 contemplated.

2 MR. HUXLEY:

3 I might add, the main reason for that particular
4 study was in the river area, and it was specifically
5 to address -- in fact, in the river area, it was in
6 the vicinity of where we would propose, perhaps, to
7 put in a pipeline bridge crossing that river, and the
8 reason was to determine if there are fish that do
9 overwinter in that area that would be disrupted
10 through a construction of a bridge. That was really
11 the specific concern being addressed.

12 MR. MATUMEAK:

13 You also have some summer environmental studies
14 in 1982, which includes fisheries, and that was
15 located where?

16 MR. DIAS:

17 It actually covered the majority of the face of
18 the Delta itself, and we also located some white nets
19 in the two main channels of the river. They have a
20 sampling -- there were a total of six white nets and
21 another set of four gill nets that were also set
22 daily, weather permitting.

23 MR. MATUMEAK:

24 And do you have any idea how many fish are in
25 that area in the summertime?

1 MR. DIAS:

2 Well, we will once that report comes out; the
3 report's not in final.

4 MR. MATUMEAK:

5 Was it mostly for larger fish?

6 MR. DIAS:

7 There was a size net, but it did take some of the
8 smaller fish; the netting was small enough to go down
9 to a fairly small size; I can't remember the exact
10 size.

11 MR. MATUMEAK:

12 How did this go?

13 MR. DIAS:

14 Mostly anadromous fish, those that would be go.
15 up into fresh water at some point in time responded.

16 MR. MATUMEAK:

17 Which includes the larger fish.

18 MR. DIAS:

19 Larger and small fish.

20 MR. MATUMEAK:

21 They're going to do some more survey of that to
22 see if the catch last year would be about the same as
23 this year?

24 MR. DIAS:

25 No, we don't contemplate that, because in 1981 we

1 did do fish studies that basically included the same
2 techniques, except there was some additional work
3 that was done in '81, plus we are depending on the
4 work that was done for the waterflood in their
5 studies over the past years.

6 MR. MATUMEAK:

7 So from this day, for one year, you've got a
8 pretty good idea how many fish migrates in the area?

9 MR. DIAS:

10 No, we're using 1982, 1981, plus the waterflood
11 data, which were several years there, too, so it's
12 more than one year.

13 MR. MATUMEAK:

14 Well in some years fish might be more plentiful
15 than the other years, you know, and I just want to
16 point that out; some more studies will probably be
17 done, you know, to get an idea exactly how the fish
18 migrate, when and where they go.

19 I just want to get myself straight on this. On
20 this Satellite A and Satellite C, would this causeway
21 to the satellite islands would be more safer than to
22 bury the pipeline underground -- undersea?

23 MR. HUXLEY:

24 We think it's technically feasible. We think
25 there's been enough work worldwide in various

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1 pipelines offshore. We think we'll have enough
2 information from what we collected thusfar in terms
3 of site specific data and physical occurrences that
4 could cause problems in a pipeline; that subsea
5 pipelines are a practical way of transporting
6 fluids.

7 We are concerned about leaks, and our detail is
8 -- the work we've done through conceptual design is
9 looked at both leak prevention and leak detection in
10 quite considerable detail. It can be something that
11 is going to be pursued during preliminary design in
12 1983.

13 It is a concern; it is something, however, that
14 we do think that is feasible and can be accomplish.

15 COLONEL SALING:

16 Let me interject there. Warren, am I correct in
17 what you're suggesting is that there is a third
18 alternative, and that is to bury the pipeline between
19 the production island and the point that it comes up
20 on land, instead of the causeway, is that what you're
21 suggesting?

22 MR. MATUMEAK:

23 Yeah, I'm suggesting that Satellite A and
24 Satellite B would be -- the pipe would be above
25 surface.

1 MR. HUXLEY:

2 In a causeway, is that right?

3 MR. MATUMEAK:

4 Yes. But like you're saying here, you can detect
5 a leak when it happens under ice. Are you able to
6 detect if there's a leak in wintertime?

7 MR. HUXLEY:

8 We will have leak detection equipment for the
9 flow lines; it will be continuously monitored
10 lines. It's the sort of equipment that we looked at
11 conceptual design, which is by no means the end of
12 our eliminating the problem.

13 For fluid lines it looks at monitoring the flow
14 into the line, monitoring the flow out of the line,
15 and then over set periods of time, examining flow in
16 and out to see that you're getting the same flow in
17 and out.

18 For gas lines it also looks at pressure
19 deviations in gas lines to insure -- compensating for
20 pressure surges to see that what you have coming in
21 is what you have coming out.

22 There are systems available -- we don't have
23 answered as yet, and we haven't gotten through the
24 actual design of the facility, but a great many
25 systems were looked at during the conceptual design,

1 that we feel are practical proven systems of leak
2 detection available that we can utilize.

3 MR. MATUMEAK:

4 Well, we have noticed that underground lines
5 can't be detected; you can't tell much of it -- it is
6 spread, you know. I'm just afraid that something
7 like this might be happening underground.

8 MR. HUXLEY:

9 I don't know that I could say too much more about
10 it.

11 COLONEL SALING:

12 I think you've made your point, and your point is
13 well taken, and that is, when we look at the risk
14 analysis on those lines underground, underwater,
15 underice, we're going to have to look very hard at
16 how reliable are the systems; the difference in the
17 pressure sensors and the rest of them.

18 Thank you.

19 DR. HARCHARIK:

20 If there's a leak, the detection device will,
21 sooner or later detect it. But the problem, what
22 contingencies will be available to clean it. If the
23 ice is smooth, for instance, when there is a major
24 leak. The technology is inefficient in getting the
25 oil back out of the water. But under conditions of

1 broken ice, the technology is very poor; it's very
2 limited. Most of the ocean industry magazines will
3 state exactly the same thing, and that's a major
4 concern.

5 If that oil is left in broken ice, depending on
6 what time of year it is, and where it goes with the
7 currents, it could be a devastating effect on the
8 environment that would be considered very important.

9 Questions I may have missed when we first started
10 asking question. What time of year was that study
11 conducted referencing fish population?

12 MR. DIAS:

13 Are you talking about the 1981, '82, summer?

14 DR. HARCHARIK:

15 This is right.

16 MR. DIAS:

17 That would be after break up, and in 1982, we
18 went after break up, as soon as we could get out
19 there. We got in the river as soon as we could and
20 the ice moved out. Offshore it took a little longer
21 because of the ice, and it carried out until about
22 the middle of September.

23 DR. HARCHARIK:

24 The reason I'm asking is because those rivers --
25 the fish that come and stay in there while the ice is

1 still there, and if the study was not done before
2 fish came your answer is going to be.....

3 MR. DIAS:

4 Well, our goal was to try to establish as best as
5 we could the environmental setting. We agree that we
6 would have liked to catch, or had our nets out there
7 before break up, or as break up was occurring. It
8 was decided back in early May when we did meet with
9 some agencies, to discuss some problems, that, one,
10 there was a human safety factor that we did not want
11 to risk; and, two, we felt that we probably would not
12 get any additional data because we'd probably lose
13 our nets because of the incident. But those are the
14 reasons we chose not to attempt it.

15 DR. HARCHARIK:

16 One of the reasons I'm asking is, in the middle
17 part of October I was ice fishing, and in a week and
18 a half got 10 sacks of fish. So, I have a question,
19 is there data on the fish population?

20 MR. DIAS:

21 This is in October?

22 DR. HARCHARIK:

23 This is in October.

24 MR. DIAS:

25 What we did was we talked to our contractor and

1 discussing with them as to when we felt was an
2 appropriate time to pull out, and the contractor felt
3 that around mid September was the appropriate time,
4 and we did.

5 As I mentioned, we struck and agreement with the
6 waterflood people in an attempt to try to share fish
7 tag data, and we captured data.....

8 DR. HARCHARIK:

9 I was just going to say, you know, I suggest that
10 probably a more efficient way would be to contact
11 those local people who do the fishing out there and
12 identify what time of year they are still fishing; I
13 doubt if that was done.

14 MR. DIAS:

15 Well, the contractor did talk to fishers, and he
16 has been talking to them for some years. The point I
17 was getting to was, the waterflood people do want to
18 continue with the pipe net sampling, and we actually
19 loaned them our nets and let them stay out there.

20 The preliminary information we're getting back
21 from the waterflood people is that because of weather
22 conditions, because of ice they were not getting good
23 data, they were losing their nets, so there was a

24

25 COLONEL SALING:

1 What you're saying is, the data they got throu
2 the testing program ought to be augmented by going
3 out and talking to people fishing out there.

4 DR. HARCHARIK:

5 Definitely.

6 COLONEL SALING:

7 To see what experience they were getting in terms
8 of that time of year, October, whenever they were
9 fishing. Your point's well taken.

10 DR. HARCHARIK:

11 Thank you. Concerning the other studies you
12 mentioned that support the fish study -- previous
13 studies in previous years, were they also done site
14 specific in other areas using similar techniques.

15 Was it a reinforcement of technique, or was it a
16 reinforcement of the '81/'82 data?

17 MR. DIAS:

18 The techniques are the studies that were done on
19 the waterflood location.

20 DR. HARCHARIK:

21 One more question. How far was the testing done?

22 MR. DIAS:

23 Initially we attempted to go out to the 18 foot 6
24 meter depth, and, again due to ice conditions we
25 couldn't get out that far and we had to come in. We

1 were slightly past three to four meter mark, as well
2 as far as we went out.

3 DR. HARCHARIK:

4 The reason I brought that up is I felt that the
5 island you're proposing to build would be seven miles
6 out, is that true?

7 MR. HUXLEY:

8 No, four miles.

9 DR. HARCHARIK:

10 That four mile gravel area is supposed to be, you
11 know, constantly circulated on the bottom; would it
12 be appropriate to be fish studies in that area,
13 because there is very little research that I know of
14 that has determined or has examined the various
15 depths that these fish go at various times of year
16 for protection going on out with that ice, because
17 there are times (indiscernible), but as the ice gets
18 thicker and seasons change, you know, I'm not sure
19 that anybody knows exactly what's out there and where
20 they go. That island itself could have taken have
21 devastating effect on that fish population, and
22 there's an awful lot of people that depend on the
23 fish in those rivers. Thank you.

24 COLONEL SALING:

25 Thank you.

1 Would anyone else like to come forward?

2 MR. OLEMAUN:

3 My name is Nate Olemaun; I'm City Mayor of
4 Barrow.

5 To reinstate what Bob had said earlier, and the
6 Sag River Delta and Duck Island hearings. When you
7 advertised it that way the people who live here in
8 North Slope, the communities are more familiar with
9 those words than what you have put out on the public
10 hearing identifying it as one of the geological
11 phrases that they use --, and using that Endicott it
12 is something that they never have heard of before;
13 you might as well use Lisbourne or Saturn (phonetic)
14 that they use also for the wording underground; th
15 don't know the words of those, but they do know the
16 Sagavanirtoq, which they shortened to say Sag,
17 because they can't say Sagavanirtoq in the Prudhoe
18 Bay area, and the Duck Islands.

19 And the map you have put out on the projects, I
20 believe instead of saying on the main island, the
21 Duck Island, where you're going to have your main
22 camp, your satellites, you should -- I've seen it in
23 there that you mention that its about so many miles
24 from the Barrier Islands. I believe in the future it
25 would be to your best interest to have the islands

1 out there, designating them that they are out there
2 away in a distance, that you are within shoreline.

3 The people you want to hear most, which I was
4 hoping to see here, the Native people to testify.
5 They could make a presentation looking at the map
6 with the areas they already know about. But when you
7 start putting Waterflood Island D, Satellite A, the
8 manmade islands, you're gonna put; they don't know
9 where that area is, other than looking at the Sag
10 River Delta, the mouth of the Sag River and they
11 would estimate.

12 The majority of them have been through there
13 already, and when you go to Nuiqsut and Kaktovik, the
14 majority of them have travelled that area, and
15 looking at this map, unless you spend an hour or two
16 explaining to them where the location is going to
17 be. And those two hours could be used getting more
18 testimony than trying to explain where you're going
19 to build them. Identify the actual locations within
20 the Prudhoe Bay area to Flaxman, I think would be
21 more helpable.

22 COLONEL SALING:

23 That's a good point.

24 MR. OLEMAUN:

25 And using the oil field slang, something that's

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1 been introduced up here the last 12 years now, wit'
2 tool pushers, roustabouts; stuff they use out in the
3 oil field, they haven't heard those before unless
4 you're down in Louisiana or Texas or someplace.

5 And the other point I would like to bring out is
6 the location of the base camp on the route they use,
7 using the causeway going over to the Sag River. To
8 everybody's knowledge, that area is not travelable
9 right now, other than the drill sites -- close to
10 Drill Site 9, that are already in existence.

11 There's no road, and you're proposing to make a
12 road and put in the base operations inland almost in
13 the middle of where you want your causeway and to
14 where the Sag River is, and that's a migrating pat
15 of the caribou.

16 Usually when you establish a headquarters in
17 Slope you put it close to the shore where your
18 operation is going to be, that way you won't
19 interfere with the migrating path of the caribou and
20 the other animals, even if you put a road there, they
21 will still go over the road, but if you put an
22 operation center there, they would have to make a two
23 to three mile detour from their migrating path. I
24 believe that should be taken into consideration.

25 I didn't come here with a prepared statement,

1 because I didn't know what kind of handouts you had,
2 other than what I have already received. And I am
3 happy that we do have 30 days to make either written
4 or oral statements again. Thank you .

5 COLONEL SALING:

6 Thank you.

7 Additional comments?

8 MR. ALBERT:

9 My name is Tom Albert, and I work with the
10 Borough.

11 Several of the comments I want to make now, I
12 guess, we discussed a little bit earlier this
13 afternoon, and I'll try to include some of these in
14 written form anyway.

15 Some of the major concerns have already been
16 mentioned here, but they're probably worth
17 considering just briefly again, and one of them is
18 the source of gravel. To contemplate the use of
19 8 million cubic yards of gravel, that's a lot. And
20 considering the impacts that are happening to the
21 marine environment as it is, it really seems strange
22 that marine sources can be justified if on-shore
23 sources are reasonably available.

24 One of the real concerns that we've got with this
25 type of development is noise. Noise is something

1 that maybe two or three years ago was much quieter
2 all respects than now, but people are becoming much,
3 much more concerned about the influence of noise on
4 particularly the migratory route of the bowhead, and
5 a lot of this happens to be related to a very clear
6 situation that seems to be developing here in Barrow,
7 and that is that since 1977, I think it is, there's
8 only been one bowhead caught here in Barrow in the
9 falltime, and from talking to a fair number of
10 whaling captains here in Barrow, the feeling is that
11 the animals in the fall are just steadily moving
12 further and further out to sea off of Point Barrow.

13 And a person might say, "Well, that's purely a
14 coincidence, but yet the same whaling captains
15 observe, as well as does almost anyone else around
16 here, that in the last few years the intensity of
17 particularly the marine seismic activities in Point
18 Barrow and to the east have been increasing, so that
19 when people are out, let's see, in their boats off
20 Point Barrow in the fall, it's not uncommon for them
21 to, let's say, report to us if we ask them the
22 following two things. Number one, they didn't see
23 any bowheads, or, if they did they were very far out,
24 and number two, they either see the seismic vessel
25 working, or if they don't see it they often hear it,

1 even though it's over the horizon.

2 So this is really getting to be a problem. Is
3 noise actually displacing the migratory route of this
4 animal, and circumstantial evidence I think at the
5 moment is getting pretty good that it is.

6 The obvious sources of noise that spring to mind
7 are such things as aircraft, vessels of one kind or
8 another and dredging operations. And one of the
9 other reasons, let's say, that I think makes good
10 sense for arguing against marine sources of gravel,
11 the noise that is going to come from the dredge.

12 These things, I would anticipate, are going to
13 make very substantial amounts of noise, so you have
14 the actual action of the dredge itself, then the flow
15 of this material rattling through this pipeline going
16 across the water to the barge, then the barge taking
17 it out to the site, wherever that is, and then
18 dumping it, and dumping a barge load of gravel from a
19 steel bottomed barge, I assume would make at least a
20 moderate amount of noise.

21 Then we have such things as the noise that's
22 going to come from the island itself. That is, the
23 generators that are going to be on the island, the
24 pumps on the island; drills; one thing and another.

25 And then something that we don't have much real

1 experience with yet but have every reason to suspe
2 it will be a perfectly good source of noise, and that
3 is the flow of oil through the pipeline, and the flow
4 of water through your injection line, or whatever.
5 But anyway, the flow of fluid through a tube makes
6 noise usually.

7 So these are some of the obvious sources of
8 noise, there may be some others.

9 As far as the poor ol' bowhead is concerned, some
10 of the more obvious concerns are the direct effect of
11 oil upon the animals. You're talking about removing
12 a billion barrels of oil from this area. One might
13 speculate that there will be a few barrels that
14 happen to slip out onto the water somehow, either
15 through a blowout or pipeline rupture or God knows
16 what.

17 So the direct effect of the oil on the animal, or
18 upon its prey species, but surely something that's
19 coming more and more into the forefront all the time
20 is the effect of noise on the animal, and I already
21 mentioned that.

22 Another animal that people are becoming more and
23 more concerned about, and expressing concerns to
24 those of us that work for the Borough, for instance,
25 are the effects of all this activity upon fish. Now,

1 we went over some of this today, and some other
2 people have brought that up here, and the villages of
3 Kaktovik and Nuiqsut, as you will soon find out,
4 consume a lot of fish, particularly Nuiqsut; and
5 causeways, I think we have every reason to suspect
6 that they're going to have some impact upon the
7 fish. If they are solid fill causeways, four miles
8 long, this seems to be just intuitively something
9 that's going to affect near shore migration of fish.

10 So the use of a continuous fill causeway we see
11 as totally indefensible from an environmental point
12 of view.

13 The only question about a causeway is how big and
14 how well maintained are going to be the interruptions
15 in it. A solid fill causeway, I don't think is even
16 worth talking about. I don't know how anyone can
17 defend it, a scientific format.

18 Another thing that I think is worth considering,
19 if you're talking about pipelines is -- and we heard
20 a little discussion about that today, is are you
21 contemplating any of these pipelines being in
22 permafrost. I might ask you folks?

23 MR. HUXLEY:

24 No. The only case examined that permafrost was
25 encountered would be a case where we came to ashore

1 to the delta without a causeway. In that case we
2 have to transition through permafrost. If the sales
3 pipelines are to stall it in a causeway, we are not
4 having to deal with permafrost.

5 The pipeline between the islands, permafrost in
6 that region is deep enough that we don't appear to
7 have any problem with permafrost there either.

8 MR. ALBERT:

9 I think I mentioned this to the Colonel this
10 afternoon. A few months ago some people from Shell
11 were up here visiting with us, they're pipeline
12 folks, and in discussions with them it sort of came
13 out that they didn't know, if I remember correctly,
14 of any marine pipeline that was in permafrost, to
15 as an example, and our concern is, if you put a
16 marine pipeline in permafrost, what is going to
17 happen, because not only do you have problems with
18 maybe ice eventually damaging this thing, but the
19 leakage of heat from it to melt the permafrost and
20 then possibly slumping of the pipe and rupture. I'm
21 sure you will consider that Environmental Impact
22 Statement.

23 Something else that someone suggested to us
24 recently, and that is that some of the islands that
25 are going to be constructed may actually have a

1 beneficial use in addition to providing income to the
2 oil companies and to the State and other folks, is
3 habitat for birds. And the Borough is going to take
4 a study on duck nest enhancement on the Barrier
5 Islands, and would ask that when you consider
6 building these islands that you also try to see
7 whether you can enhance the likelihood of waterfowl
8 usage of the islands. This is an obvious good
9 management technique which can help to defuse maybe
10 some concern that nothing is being done to help
11 subsistence users of resources.

12 Another thing that we touched on a little bit
13 today was the need for long term monitoring in the
14 looking for, let's say, environmental impacts of
15 these actions.

16 To conduct one or two years of a fish survey is
17 good and great, and, incidentally, we would like to
18 have copies of any of these reports that you have
19 cited as background material, preferably three copies
20 if we could, of each.

21 But in your scoping document here you site
22 natural large scale fluctuations which are
23 characteristic of Arctic ecosystems, and we agree
24 with you that this is true. So one or two year
25 studies by your own scoping documents definition,

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1 probably, are less than adequate.

2 So it seems reasonable that if you're going to
3 put a major physical structure out here which a lot
4 of scientists agree, is going to have an impact, that
5 it be coupled with an appropriate monitoring scheme.

6 Another thing that we touched on this afternoon
7 with the Colonel is the inspection of these
8 facilities, both during their construction and their
9 long term operation. What is going to be the
10 inspection scheme to properly monitor compliance with
11 permits and one thing and another?

12 I think it's pretty obvious to us now that there
13 just isn't all that much inspection regarding
14 compliance up here on the North Slope and one does
15 want to have the image of the fox guarding the
16 chicken coop, you might say. There are major
17 industrial activities going on up here with billions
18 and billions of dollars at stake, plus a lot of
19 resources at stake, and I think it's appropriate that
20 some effort be spent at enhancing the monitoring and
21 compliance section of the appropriate agencies, the
22 Department of Environmental Conservation, Natural
23 Resources, Corps of Engineers, and surely lots of
24 others.

25 So that's my comments.

1 COLONEL SALING:

2 Thank you very much.

3 Any additional comments?

4 (No audible response.)

5 Ladies and gentlemen, I will remind you that the
6 record will remain open for 30 days for any comments
7 that you may have.

8 I think our address - if it's not in the Scoping
9 Document, we will provide it to you; I believe it's
10 in there.

11 I thank you all very much for coming out this
12 evening, and I think you have given us some valuable
13 input and we will hope to make the most of it. Thank
14 you very much.

15 (Where^θupon the hearing adjourned at 9:30 p.m.)
16 ^

17 (Whereupon the following testimonies were given
18 after the close of the hearing.)

18 MS. MAUPIN:

19 My name is Dorcas Maupin. I'm concerned about
20 the rigs that -- the last meeting -- when was that --
21 anyway, there was a rig about -- that was being built
22 -- that was floating to Nunivak Island -- I was
23 reading about it in the newspaper, September of
24 1982.

25 And I'm concerned about the winds, the currents

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1 that are swift, especially in the spring and summer
2 months. And some fishes migrate to different
3 areas.

4 I was looking at the map with my dad, who is in
5 Fairbanks right now, when he came up last summer for
6 the Elders Conference. We looked at the North Slope
7 area where the fish, caribou, ducks and birds that
8 are migrating, and now adays there was concern about
9 the noise that is continually here in the Barrow area
10 and other villages, also.

11 When I was a girl my grandmother took me towards
12 the beach; we walked down there, and we have these --
13 we would pick these snipes and use them for our
14 meal. Nowadays they're practically gone.

15 And I'm concerned about the rig builders. There
16 was a first rig about five miles east of Barrow, that
17 was no longer there. There was much concern about
18 the trash that the rig builders throw around and the
19 caribou got tangled in a wire -- now they're studying
20 about it. That was dead for so many years. Somebody
21 found it. The wires were dangled with this.

22 And I'm concerned about where they're gonna --
23 these men, 700 some, who are going to be housed and
24 working, where are they going to throw their weight,
25 and whatever; what are they going to do with them.

1 And that was my concerns. Thank you.

2 And I might add that the maps that you should
3 look into -- the Native people, especially, should
4 look into them. If they're going to have a next
5 meeting concerning where the migrating animals will
6 be, some of their older elders, they know more about
7 these things than I do. We could learn from them if
8 they look at the map, where the fish is, caribou and
9 other animals travel. Thank you.

10 MR. BROWER:

11 My name is Johnny Brower. I just got some
12 concerns on some critical areas of habitats of
13 migration and feeding patterns on bowhead whale that
14 migrate through here -- through Barrow and then
15 through to Prudhoe Bay and into Canadian Island
16 water.

17 My main reason I would like to express my view in
18 some of these ideas, is the critical feeding pattern
19 in the rest areas for the bowhead whale, and the
20 young bowhead whale that migrate and rest or take
21 feeding stopovers in regions of the Prudhoe Bay
22 region areas and offshore islands. And in the past
23 I've heard some pretty strong rumors and stories that
24 some of the oil companies have spilled a large volume
25 of diesel or gasoline, which actually leaks out into

1 the island area waters, which is a pretty rich
2 resource of feeding patterns and planting locations
3 for all the whales that feed off these miniature
4 organisms.

5 And I, for one, as a whaler from here in Barrow,
6 have a great concern on my diet that I eat from these
7 mammals. The skin tissue infections and scars that
8 are appearing on some of the mammals we get, gives me
9 a lot of concern to express my views on some of
10 these, and if they get into eating a lot of this gas
11 soaked ^{plankton} ~~plantain~~ that they feed on; what the whale
12 eats is what I also eat from the whale, plus my
13 Native people here in Barrow and the regions.

14 I'm mostly interested in seeing some better
15 aspects of preventive measures to prevent small
16 volume pollution or large scale pollutions on these
17 natural water areas of the bowhead whale, which is
18 supposed to be listed as endangered species, and is
19 supposed to have its own whale sanctuary areas and
20 feeding grounds, but nobody in this country seems to
21 be aware of what the endangered species animal is
22 anymore on account of what they need for their
23 country on this oil. It seems to me they go crazy
24 enough to get what they want from the oil fields and
25 just ignor it and pollute and damage the resource

1 value of the structures of feeding grounds and
2 migration patterns and the hunting areas of the
3 Native people for these whales we eat.

4 That's just about almost all I could cover for
5 right now, because I didn't come with a prepared
6 statement to speak on, so I'll just speak what I can
7 give from my point of view.

8 I am more interested in seeing the oil companies
9 do directional drilling from inland. From what I
10 understood in some of the past workshops they had, I
11 seen some information that they could use offshore --
12 they don't really need to use offshore equipment, but
13 use inland equipment for angle drilling that could do
14 up to drilling 10 miles real easy. So I would, more
15 or less, have interest in encouraging oil companies
16 to drill from the inland regions and not designated
17 as natural offshore island areas, which is a pretty
18 poor location, just in case natural forces of storms
19 or ice movement comes around, they could get covered
20 up with a large volume of ice, like some of the
21 families that have been covered up in the past
22 century, in the late 1820s. Some of these families
23 were discovered and had to be reburied. They were
24 over 65 feet above sea level, and they got caved in
25 with the ice movement.

1 I would like to see some better measures and
2 preventive measures to be used and not to pamper with
3 with migratory patterns. And seasonal movements of
4 the whale on these regions that are here in the Arctic
5 waters, it seems like this country need to make it --
6 give use of the industrial production equipment, in
7 learning how to protect what nature has produced and
8 what the country really wants from it, they should
9 have a better respect in value in terms of the needs
10 of what they have. If they want something, that they
11 shouldn't destroy or pollute these regions.

12 My main concern is to see offshore drilling be
13 depleted and be voided out from the agendas of the
14 state and federal and encourage them to use angle
15 drilling from inland, like I stated earlier. They
16 have the necessary equipment and drilling units that
17 can drill offshore by measures of long range, and
18 they have some more equipment in production that
19 could give a little bit more accuracy in the distance
20 of these angle drillings.

21 I don't have much to say from there. I would
22 like to thank you for the opportunity for the
23 statement for this. I hope they do a better job
24 instead of trying to destroy what they need to
25 destroy (indiscernible), the demons getting their

1 fill of their black faces. That's not a funny thing
2 to state a thing like this, but the insanity of the
3 country seems to do what they want to do. For the
4 people, of the people, and by the people; they can
5 also be moved out of the regions if they destroy and
6 damage too much.

7 I thank you for the opportunity for this
8 statement and interview this evening. That's all I
9 got to say.

10 (Whereupon the statements ended.)
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